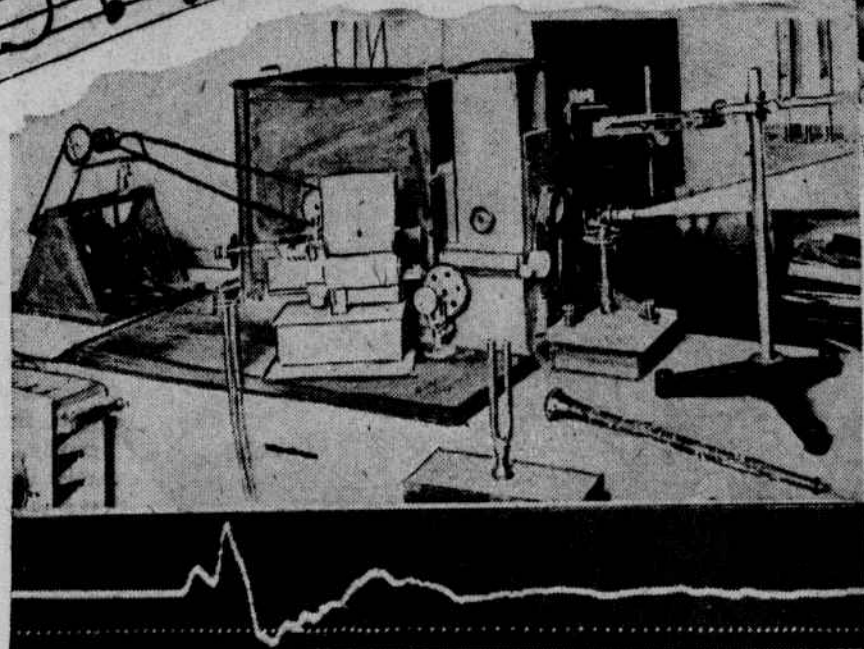


How the Beauty of A Woman's Face May Be Set To Music

Science Discovers How Milady's Admirer of the Future May Translate Her Into a Beautiful Opera to Take the Place of Love Sonnets

Right—
Lady Diana
Manners
and the chord
produced by
her
profile.

To the
right—
The
apparatus
for
transmuting
the face
into
musical
tones.
Attached
is one of
the tone
photo-
graphs.



Above is reproduced a "tone photograph" of a young woman's face—with its musical chord transcribed.

Below—
Dayton S.
Miller, inventor
of the photo-
phonograph.



those days science had made vast strides. Edison and other inventors had made it possible to reduce sound to its component parts.

Prof. Miller found that simple tones, when combined, form simple curves on the sensitized film. By the use of his own harmonic analyzer it was found possible to pick complex wave forms to pieces and to obtain the simple wave forms which, in combination, make the entity.

Investigation showed that musical sounds were represented by composite curves which appeared to flow smoothly, with rounded bends and symmetrical groupings, in an effect pleasing to the artistic eye. On the other hand, discords are represented by waves of sharp points, "zigzags," and what may be termed "kinks."

a sound with a simple curve corresponding to one of the simple curves of the young woman's profile. The pipes were sounded simultaneously. The resulting tonal effect was a rich harmonious chord, with a sound much like that of the French horn which suggested the experiment.

Then the process was reversed. The organ pipes were sounded before the photographing apparatus and on the sensitized film there appeared the profile of the young woman as perfect as the original photographic outline.

Further experiments are now being made not only in the Case School laboratory of Prof. Miller but by other scientists. It is proposed to actually compose a completed musical work from the face of some beautiful woman, or, as Prof. Miller says, "from the face of a woman, for any woman is beautiful if only her soul is free, and as all music differs so does all beauty."

How interesting indeed will these experiments be! Will they not, in their progress, reveal some hitherto unknown romances? Was it, perhaps, the memory of a woman that inspired "Home, Sweet Home," and if that quaintly beautiful melody is returned to its basic theme will the curves this produced reveal the profile of her of whom Payne was thinking when his loneliness was translated into his enduring song?

Verdi composed his "Aida" for the Khedive of Egypt. The first performance was during the dedication of the Suez Canal in a theater especially built in the very shadow of the Pyramids. What profile would result if the march of the high priests from "Aida" was photographed? Cleopatra? Some Italian signorita?

Who would emerge from the tonal thunders of Wagner? Cosima Buelow-Liszt or Liszt-Buelow Wagner?

Could Science Bring
Joan of Arc Into View?

Would Haydn's "God Save the King" resume itself into Consuelo, the heroine of George Sand's novel of that name, in which Haydn is the hero?

And what martial beauty would come from the reverberating cadences of the "Marseillaise," Roger de Lisle's immortal song? Joan of Arc? Charlotte Corday?

And what grotesque profile would adorn the film if modern "jazz" were to be played into the device? Would the wall of the saxophone and the clash of the cymbals, plus the thumping of the drum, result in a beautiful profile? Or would a witch of Endor—a Medusa, come to view?

There is yet another side to this interesting experiment. If eventually we can transmute human faces into musical sounds, then "say it with flowers" will be replaced by "say it with song." Lovers will no longer be content with photographs of their beloved. They will want the musical equivalent to be played on their phonograph or player piano.

They will classify her by the key in which they can play her profile. Of course this is merely jocular, but then even austere science can smile at times.

Speculation may well lend itself to varied imagines. If youth of the future composes an opera built upon a leit motif from the young lady whom the composer adores, and she is beautiful from a really artistic viewpoint, then the opera undoubtedly will be melodious. But should she be handsome only because seen through the eyes of love, then we may get another much criticized "Salome." Or is Prof. Miller's gallant theory correct, and are we assured that woman can produce no discords?

The possibility of photographing sound waves accurately opens a wide field of research. Perhaps it will be possible to read character from the photographic-sound record of a man or woman. The profile, translated into sound, may reveal to us things which even the psychoanalyst has failed to discover. Too, a woman's voice, translated into a profile may reveal the profile of such a man as would be her ideal.

As has been said above, the possibilities are endless—and Prof. Miller's further experiments will attract wide attention.

The human equivalent of a series of notes played on a French horn.

The richer the musical sound, the more complex it is and the more complex becomes the wave form, but such forms always are beautiful in lines and flow smoothly.

Prof. Miller decided to transmute some feminine profile into musical sounds. He chose for the test the face of a young woman whose profile was especially graceful and pleasing. A photograph of the actress was placed in a projecting lantern and thrown upon a sheet of paper. Then the profile was traced and by means of the harmonic analyzer resolved into its simple component musical curves. There were found to be fourteen such separate curves.

Then fourteen organ pipes were selected, each of which was known to give

shape of a facial profile. It was easily distinguishable as a feminine profile.

In finding music in the feminine face, and translating it into actual musical sounds, each face into its own chord and musical theme, Prof. Miller has only reduced to scientific evidence what has hovered unexpressed in the human mind for ages. Always there has been an association of woman and music. Those who have been satirical have made it a trilogy by adding "wine" to the phrase, but the more respectful minded have always sensed a sincere and beautiful association between feminine and melodic charm. And the two seem often to have expressed themselves, in history, in association with each other.

Who does not recall the "Odyssey," and the Sirens who sought to lure Ulysses to destruction by their beauty supplemented by song. And is not Heine's "Lorelei" of a similar company which knew the potency of music and femininity combined? Through mythology, through the Norse sagas—the Nibelungen Lied—Miriam, who sang and danced before the returning hosts of Judea—all these appear to prove the unconscious association of woman and music, as if it has long been understood by instinct that every woman was but a component of a song as a symphony.

Machine to Separate
Sound Waves Invented

Very naturally, Mr. Miller was amazed. He thought the result attained was accidental. Again and again he called for melodies from the horn—"Ave Maria," "Home, Sweet Home," "The Lost Chord"—an endless procession of musical sounds and tonal combinations were played for him, and wherever there was harmony the profiles of what appeared to be beautiful women in endless succession and combination appeared on the film.

Having accomplished this much, Mr. Miller wondered what he would do with his discovery—how he would apply it practically. Reasoning that if a combination of musical sounds produced a human profile then a human profile should produce musical sounds, he began a new series of experiments. He made use of all theories and discoveries relating to musical sound of which there was dependable record.

In 1844 the scientist Ohnd, at Munich, declared the principle that beautiful musical sounds are the blending of separate, simple, component sounds. He attempted to analyze chords by ear, but failed. Since

May not the inspired composer, impressed, for example, with the splendor of Lady Diana's beauty, find his theme, and his melodies, grow to a symphonic masterpiece from this single chord? May not the impelling beauty of his composition inspire, too, the lyrical accompaniment—until, his inspiration materialized, he may usher Lady Diana to the premiere of her very self set to music?

What an exquisite compliment! And not only in the perfect Grecian profiles of such feminine loveliness as that of Lady Diana that the most enchanting music may be found. Prof. Miller declares that there is melody in every woman's face—and this member of the faculty of the Case School is by no means a poet, but a most unsentimental scientist. It was he who invented the delicate instrument for the photographing of sound waves. He followed closely the experiments of Bell, with the telephone and Edison with the phonograph. He was not content to stop with these great inventors—the mere reproducing of sound. He began the long experiments which finally resulted in his ability to visualize sounds—to actually see them, by means of photography. It was not, therefore, a quest of some sentimental achievement that actuated him or gave him the means of putting feminine charm down on paper in a series of music notes.

The instrument used by Prof. Miller is extremely delicate. The vibrations of a sound are carried to a diaphragm which oscillates a small mirror. A tiny, but intense beam of light falls on the mirror and is reflected to a moving, sensitized film, on which are recorded the curved lines corresponding to the sound waves vibrating the diaphragm.

Music Is Transformed
Into a Human Profile

Many instruments were tested and almost all conceivable tonal combinations were utilized in his experiments. Prof. Miller asserts that the most beautiful lines produced were those recording the contralto register of the French horn. He engaged an expert to play the horn. Then he developed his film and, to his astonishment, discovered that the curves produced by the sounds of the horn were in the

curves that make a woman's profile. In a frivolous mood, though no doubt somewhat curious, he caused an entire melody to be photographed and carefully examined the photographic curves it produced. Here and there he found undulations on the plate which corresponded exactly to the curves with which the feminine face is shaped.

Perhaps his frivolous attitude suddenly became serious. At any rate, he continued his experiments. He transferred to paper the profile of a pretty girl. He photographed chords and melodies until he had subtracted from the mass of photographic plates he thus accumulated, single sound curves which placed together reproduced the feminine profile. Identifying the notes to which the sound-curves belonged, he placed them on the scale and saw before him a perfect, harmonious chord—which, struck upon the piano, resulted in a pleasing musical ensemble.

That was the beginning. The musical key to a woman's beauty had been discovered. Continued experiment reduced the theory to a fact accomplished. Hence the prospect that it will not be long before the modern troubadour may storm the heart of his enchantress by translating her physical charm into a soulful opera, or an operetta, or a merry, lulling comedy of music—according to her personality, and the completed score then shall be his souvenir of love.

One of the world's most beautiful faces which has been reduced to its musical expression was that of Lady Diana Manners. The thought that Lady Diana's loveliness may now be expressed in a single chord, struck upon the piano or drawn from the violin, presents an interesting prospect indeed.

So far Prof. Miller has carried his experiments no further than the production of the single chord which is produced by the grouping of the different notes which, photographed, produce the completed profile of the face. But the most stupendous opera is founded upon a single chord—the chord, dissected, becomes the basic theme, and it is from this theme the composer builds his musical structure—the single chord expressed in infinite variety of melody.

THE calm, terse announcement that a woman's face may be set to music, arranged into chords and played upon the piano, the organ or, even, the more appropriate violin, would seem, at first glance, to be the exclamation of some unusually imaginative poet.

But when the announcement is identified as originating with a most matter of fact scientist, one of the distinguished members of the faculty of such a prosaic university as the Case School of Applied Science, the statement suddenly proves worthy of attention.

Prof. Dayton S. Miller of the Case School, which is in Cleveland, has declared that every woman's face is a musical composition; that it may be scientifically interpreted into melodic rhythm and, of course, played upon any musical instrument.

From Prof. Miller's revelations of the progress he has made in finding tangible music where the poet for centuries has found the music of dreams, it is but a step to that time when the poet no longer will write sonnets to the mistress of his heart, but will instead, compose her into an opera.

Prof. Miller's method is simple. One wonders why it was not discovered before. His demonstrations are convincing and complete—on this page there are reproduced photographs which are amazing evidence.

Even the formula is startlingly brief. Scientific experimenters learned some time ago that they could photograph musical sounds. Sensitive plates were made that would receive the imprint of the wave agitation resulting from the note struck on the piano or the organ.

Sound waves were found to be an arrangement of curves—the progress of sound through the atmosphere caused disturbances in a series of undulations.

Every note, of course, registered on the photographic plate a different curve, or series of them.

Professor Miller speculated, as poets always have—and even, it would seem, men of science also—upon the symphony of the

May Make Venice City of Dry Streets

VENICE without water would hardly be Venice at all, but we are assured there is a possibility that the picturesque Venice of to-day may become a city of the past, and eventually Venice may be waterless.

According to Marinelli, the regular increase of the delta of the river Po is such that in process of time the northern Adriatic will be dry and Venice will be no more upon the sea. A comparison of the Austrian map of 1823 with the record of the surveys made within recent years shows that the mean annual increase of the delta during these years has been three-tenths of a square mile.

An encroachment upon the sea of three-tenths of a mile in a year means a large increase in a century. It appears that the total increase in six centuries has been about 198 square miles. The increase is continuing, and the Gulf of Venice is doomed to disappear.

No immediate alarm need be felt, and it will not be necessary to hurry off to Venice to take a farewell look at the city in its present picturesqueness. It is calculated that between a hundred and a hundred and twenty centuries will elapse before the entire northern Adriatic will have become dry land.

WITHIN the last few years improvements in the stereoscopic effect of relief maps have been attained by a unique color scheme. The effect is well shown when a square is colored with the reds in the center, and the yellows, greens and blues ranged outside. Such a square appears to the eye to be raised in the center.

If the order of the colors is reversed, the central part of the square appears to be depressed. In arranging the colors the tints are varied by careful graduation.